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October 8, 2019

Chairman Jared Huffman  
Subcommittee on Water, Oceans and Wildlife  
Committee on Natural Resources  
House of Representatives  
1324 Longworth House Office Building  
Washington, DC 20515

*Delivered via electronic mail to Casey MacLean, Subcommittee Clerk at Casey.MacLean@mail.house.gov*

Dear Chairman Huffman and Members of the Subcommittee:

Thank you for the opportunity to present testimony before the Subcommittee on Water, Oceans and Wildlife on September 24, 2019. I am pleased to provide answers to the following Questions for the Record, as requested in your letter of September 30, 2019:

### **Questions for the Record**

#### ***Questions from Representative Jeff Van Drew***

- How essential will wetlands be for combatting climate change?
- How important is the reauthorization and increased funding of NAWCA for American wetlands?
- How much could coastal districts who rely heavily on healthy habitat to support fisheries and other wildlife for birdwatching, recreation, fishing, and tourism stand to lose economically should wetlands continue to be lost?
- How do wetlands benefit hunters and fishermen?
- How will the \$18 million increase in annual appropriated funds further wetland conservation?

#### ***1) How essential will wetlands be for combatting climate change?***

As I stated in my testimony, to reduce the effects of climate change on biodiversity, scientists and many policymakers agree that we must adopt a two-pronged approach: we need to **mitigate** impacts by rapidly reducing our greenhouse gas emissions in order to limit the magnitude of global warming and we must support natural systems to **adapt** to the current and future effects of warming. Wetland ecosystems are essential for combatting climate change due to their contribution to both mitigation and adaptation.

While all types of ecosystems take up carbon dioxide through photosynthesis, and store it in plant tissues, woody material and soils, wetlands are particularly effective at doing this, because they are highly productive and the wet, oxygen-poor soil conditions inhibit decomposition, slowing the re-release of carbon dioxide into the atmosphere. It has been estimated that wetlands contain 20 to 30 percent of global soil carbon reserves, despite covering 5 to 8 percent of land surface.<sup>1</sup>

Wetlands are also important for adaptation, especially through flood protection. Wetlands have often been likened to natural “sponges” that can collect and hold waters from precipitation events or coastal storm surge, allowing that water to be released slowly, rather than in a damaging pulse of floodwaters. For instance, an analysis of the floodplains and wetlands in a Vermont watershed estimated that these provided flood reduction services valued at up to \$450,000 per year to the city of Middlebury and reduced damage from Tropical Storm Irene by 84-95%.<sup>2</sup> Flood protection performance of coastal wetlands during 2012’s Superstorm Sandy was even more impressive: one study estimated that coastal wetlands helped to avoid \$625 million in flood damages in twelve states due to reduction of the height of flood waters as they washed ashore. Some of the most pronounced loss avoidance was in New Jersey: Hamilton Township in Atlantic County “would have had a 139% increase in property damages if the wetlands between the township and the coastline had been lost.”<sup>3</sup>

This suite of benefits explains why the Intergovernmental Panel on Climate Change (IPCC) “Special Report on Climate and Land” includes “restoration and reduced conversion of coastal wetlands” as a response option to global warming, with “large” positive impacts for climate change mitigation (greater than 3 gigatons CO<sub>2</sub>-equivalent per year) and “large” positive impacts for adaption (positive for more than 25 million people).<sup>4</sup> Moreover, the IPCC considers conservation of wetlands to be a response option that offers “immediate” climate benefits,<sup>5</sup> helping us “buy time” to bring other response options to scale.

## ***2) How important is the reauthorization and increased funding of NAWCA for American wetlands?***

Reauthorization of the North American Wetlands Conservation Act is very important for continuing to preserve and enhance some of America’s most biodiverse and imperiled ecosystems. Coastal wetland ecosystems are “some of the most threatened on the planet and are being transformed, degraded or destroyed due to climate change (including rising temperatures, rising sea levels, and ocean acidification) and due to other human stressors such as nutrient pollution habitat and

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<sup>1</sup> Nahlik, A.M. & M.S. Fennessy. 2016. Carbon storage in US wetlands. *Nature Communications* 7: Article 13835. Available at <https://www.nature.com/articles/ncomms13835>

<sup>2</sup> Watson, K.B. et al. 2016. Quantifying flood mitigation services: the economic value of Otter Creek Wetlands and floodplains to Middlebury, VT. *Ecological Economics* 130:16-24. <https://doi.org/10.1016/j.ecolecon.2016.05.015>

<sup>3</sup> Narayan, S. et al. 2017. The value of coastal wetlands for flood damage reduction in the Northeastern USA. *Scientific Reports* 7: Article 9463. Available at <https://www.nature.com/articles/s41598-017-09269-z>

<sup>4</sup> Intergovernmental Panel on Climate Change. *Climate Change and Land: An IPCC Special Report on climate change, desertification, land degradation, sustainable land management, food security and greenhouse gas fluxes in terrestrial ecosystems*. Summary for Policymakers (August 7, 2019) (page 28). Available at [https://www.ipcc.ch/site/assets/uploads/2019/08/Edited-SPM\\_Approved\\_Microsite\\_FINAL.pdf](https://www.ipcc.ch/site/assets/uploads/2019/08/Edited-SPM_Approved_Microsite_FINAL.pdf)

<sup>5</sup> *Ibid*, page 19.

biodiversity loss, and overfishing.”<sup>6</sup> Between 1996 and 2010, coastal regions lost nearly 1,550 square miles of wetlands, with the greatest losses occurring in the northern region of the Gulf of Mexico,<sup>7</sup> a critically important bird flyway. Inland wetlands also face threat of conversion and degradation: in the U.S. since the 1950s, an estimated “19 million acres (7.7 million ha) of forested wetland and 7.0 million acres (2.8 million ha) of emergent wetlands drained or otherwise lost.”<sup>8</sup> Fortunately, NAWCA and other programs have helped to stem this decline. From 2004 to 2009, for instance, net loss of freshwater vegetated wetlands was only 0.2%, and during that same period, an estimated 489,600 acres of wetlands were re-established.<sup>9</sup> NAWCA has also helped to improve habitat values of existing wetlands. All told, since 1991, NAWCA grants have helped to create or enhance 30 million acres of wildlife habitat in wetlands and adjacent grasslands.<sup>10</sup>

***3) How much could coastal districts who rely heavily on healthy habitat to support fisheries and other wildlife for birdwatching, recreation, fishing and tourism stand to lose economically should wetlands continue to be lost?***

The 2016 National Survey of Fishing, Hunting and Wildlife Associated Recreation<sup>11</sup> reported that 23.7 million people took trips of at least 1 mile from home to observe or photograph wildlife. Trip-related expenditures totaled \$11.6 billion and equipment-related expenditures totaled \$55.1 billion. Seventy-two percent of wildlife-watchers reported observing birds, and importantly, two of the top four most-watched bird groups were wetland-dependent: 11.5 million people observed waterfowl and 8.8 million people observed herons, shorebirds and other waterbirds. Within most coastal states, 8 to 12% of residents over 16 years old reported taking at least one trip away from home to observe wildlife.

The same survey reported that 35.8 million Americans over age 16 took a total of 383 million fishing trips in 2016 and spent \$46.1 billion in fishing-related expenses. While this total includes both freshwater and saltwater fishing expenditures, it is important to note that wetlands contribute to the quality of both types of fishing experiences, through their contributions to water quality, productivity, and juvenile fish survival (as described in the answer to question #4, below).

The 2016 survey report does not divide out participation specifically in waterfowl hunting. The most recent waterfowl-hunting data appears to be in the previous 2011 survey by the U.S. Fish and Wildlife Service<sup>12</sup> which found that waterfowl hunters, whose activities are highly dependent on

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<sup>6</sup> U.S. Global Change Research Program. Fourth National Climate Assessment, Volume II: Impacts, Risks and Adaptation in the United States. Chapter 5, Land Cover and Land-Use Change (page 340). Available at [https://nca2018.globalchange.gov/downloads/NCA4\\_2018\\_FullReport.pdf](https://nca2018.globalchange.gov/downloads/NCA4_2018_FullReport.pdf)

<sup>7</sup> U.S. Global Change Research Program. Fourth National Climate Assessment, Volume II: Impacts, Risks and Adaptation in the United States. Chapter 5, Land Cover and Land-Use Change (page 209). Available at [https://nca2018.globalchange.gov/downloads/NCA4\\_2018\\_FullReport.pdf](https://nca2018.globalchange.gov/downloads/NCA4_2018_FullReport.pdf)

<sup>8</sup> U.S. Fish and Wildlife Service. 2010. Status and Trends of Wetlands in the Conterminous United States, 2004-2009 (page 72). Available at <https://www.fws.gov/wetlands/documents/Status-and-Trends-of-Wetlands-in-the-Conterminous-United-States-2004-to-2009.pdf>

<sup>9</sup> *Ibid* (page 71).

<sup>10</sup> North American Wetlands Conservation Act Progress Report, 2016-2017 (page 5). <https://www.fws.gov/migratorybirds/pdf/grants/nawca.progrpt.16-17.pdf>

<sup>11</sup> U.S. Fish and Wildlife Service. 2016. National Survey of Fishing, Hunting and Wildlife-Associated Recreation. Available at [https://wsfrprograms.fws.gov/Subpages/NationalSurvey/nat\\_survey2016.pdf](https://wsfrprograms.fws.gov/Subpages/NationalSurvey/nat_survey2016.pdf)

<sup>12</sup> U.S. Fish and Wildlife Service. 2015. Economic Impact of Waterfowl Hunting in the United States. Addendum to the 2011 National Survey of Fishing, Hunting and Wildlife-Related Recreation. Report 2011-6. Available at <https://www.fws.gov/economics/divisionpublications/Waterfowl%20Hunting%202011.pdf>

wetlands, account for 11 percent of all hunters. The 1.5 million waterfowl hunters collectively spent \$633 million on trip expenditures and nearly \$700 million on equipment. The same report found that waterfowl hunting generated 27,348 jobs and \$234 million in federal tax revenue. While the report did not distinguish between coastal and inland districts, two of the top three waterfowl hunting states, based on respondents (California, Arkansas, Louisiana) were coastal states.

#### ***4) How do wetlands benefit hunters and fisherman?***

The Environmental Protection Agency's "Wetlands Function and Values"<sup>13</sup> training module enumerates many of the benefits of wetlands: "fish and wildlife habitats, natural water quality improvement, flood storage, shoreline erosion protection, opportunities for recreation and aesthetic appreciation, and natural products for our use at little or no cost." Wetlands benefit waterfowl hunters by providing breeding, brood-rearing, migratory stopover and wintering habitats for waterfowl: "Migratory waterfowl, including ducks, geese, and swans, use coastal and inland wetlands as resting, feeding, breeding, or nesting grounds for at least part of the year. . . Most of these ducks rely on the prairie potholes (depressional wetlands) in upper mid-western United States and adjacent Canada and interior wetlands in northeastern North America for nesting."

Wetlands are critical as fish habitat as well: "Because they produce so much plant biomass and invertebrate life, estuaries and their coastal marshes serve as important nursery areas for the young of many game (recreational) and commercial fish and shellfish. Menhaden, flounder, sea trout, spot, croaker, and striped bass are among the more familiar fish that depend on coastal wetlands. Such areas are also critical nursery habitat for young commercial shrimp along the Southeast and Gulf Coasts. Freshwater fish, such as the chain pickerel and northern pike, use well-flooded or ponded wetlands as breeding and nursery areas."

#### ***5) How will the \$18 million increase in annual appropriated funds further wetland conservation?***

According to the 2016-2017 NAWCA Progress Report<sup>14</sup> the \$94 million in grants made over those two years leveraged matching funds from partners totaling \$273.7 million that improved habitats on 630,651 acres. Extrapolating from those figures, we anticipate that an increase of \$18 million in appropriated funds could leverage an additional \$52.4 million in partner matching funds to improve 121,000 additional acres of habitat over baseline funding each year.

Thank you again for the opportunity to present testimony. I am happy to provide further information or clarifications if needed.

Sincerely,



Aimee Delach  
Senior Policy Analyst, Defenders of Wildlife

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<sup>13</sup> U.S. Environmental Protection Agency. Watershed Academy Web: Wetland Functions and Values Module. Available at <https://www.epa.gov/sites/production/files/2016-02/documents/wetlandfunctionsvalues.pdf>

<sup>14</sup> *Op Cit.* NAWCA Progress Report (page 5).